HUMAN ALBUMIN GRIFOLS - albumin human injection, solution
Instituto Grifols, S.A.

DESCRIPTION

Albumin (Human), Human Albumin Grifols® 25% is a sterile aqueous solution for single dose intravenous administration containing 25% human albumin (weight/volume). Human Albumin Grifols® 25% is prepared by a cold alcohol fractionation method from pooled human plasma obtained from venous blood. The product is stabilized with 0.08 millimole sodium caprylate and 0.08 millimole sodium acetyltryptophanate per gram of protein. Human Albumin Grifols® 25% is osmotically equivalent to five times its volume of normal citrated plasma.

A liter of Human Albumin Grifols® 25% solution contains 130-160 milliequivalents of sodium ion.
The aluminium content of the solution is not more than 200 micrograms per liter during the shelf life of the product.
The product contains no preservatives.

Human Albumin Grifols® 25% is heated at 60 °C for ten hours. No positive assertion can be made, however, that this heat treatment completely destroys the causative agents of viral hepatitis. There are no known cases of viral hepatitis which have resulted from the administration of Human Albumin Grifols® 25%.

CLINICAL PHARMACOLOGY

Albumin is a highly soluble, globular protein (MW 66,500), accounting for 70-80% of the colloid osmotic pressure of plasma. Therefore, it is important in regulating the osmotic pressure of plasma[1,2]. Human Albumin Grifols® 25% supplies the oncotic equivalent of approximately 5 times its volume of human plasma. It will increase the circulating plasma volume by an amount approximately 3.5 times the volume infused within 15 minutes, if the recipient is adequately hydrated[3]. This extra fluid reduces hemoconcentration and decreases blood viscosity. The degree and duration of volume expansion depend upon the initial blood volume.
When treating patients with diminished blood volume, the effect of infused albumin may persist for many hours. The hemodilution lasts for a shorter time when albumin is administered to individuals with normal blood volume.

Albumin is also a transport protein and binds naturally occurring, therapeutic, and toxic materials in the circulation[2].
Albumin is distributed throughout the extracellular water and more than 60% of the body albumin pool is located in the extravascular fluid compartment. The total body albumin in a 70 kg man is approximately 320 g; it has a circulating life span of 15-20 days, with a turnover of approximately 15 g per day[1].

INDICATIONS AND USAGE

Albumin (Human), Human Albumin Grifols® 25% is indicated:

1. For the prevention and treatment of hypovolemic shock[2,4], and
2. in conjunction with exchange transfusion in the treatment of neo-natal hyperbilirubinemia[2].
3. Concentrated Albumin (Human) solutions (e.g., 25%) have also been used successfully to induce diuresis in some patients with acute nephrosis[1] who were refractory to other forms of treatment. However, Albumin (Human) has no role in the management of chronic nephrosis.
4. More dilute Albumin (Human) solutions (e.g., 5%) have been used as pump priming fluids during cardiopulmonary bypass. However, an adequate blood volume can also be maintained during bypass with crystalloid as the only priming fluid without a significant difference in the clinical outcome achieved[1,2].

Conditions in which Albumin (Human) use is usually not justified:

1. Postoperative hypoproteinemia. Major surgery or other injury of capillary walls may lead to substantial losses of circulating albumin over and above those due to bleeding[1,2,4,5]. However, this redistribution of albumin in the body rarely causes clinically significant hypovolemia, hence treatment with Albumin (Human) is usually not indicated.
2. Renal dialysis. Patients undergoing long-term hemodialysis may occasionally require Albumin (Human) for the treatment of an acute volume or oncotic deficit[1]. Such patients who receive Albumin (Human) should be carefully monitored for signs of circulatory overload, to which they are particularly sensitive.
3. Paracentesis or Acute liver failure. Removal of even large volumes of ascites fluid is usually well tolerated. However, if significant hypovolemia and/or cardiovascular function changes ensue, Albumin (Human) can provide short-term benefit.

Similarly, in patients with acute liver failure, Albumin may have a stabilizing effect, but the therapy must be guided by individual circumstances[1]. Albumin (Human) is of no value in the management of chronic cirrhosis.

Unless the pathologic condition responsible for hypoalbuminemia can be corrected, administration of Albumin (Human) can afford only symptomatic relief. There is NO valid reason for the use of Albumin (Human) as an intravenous nutrient.

CONTRAINDICATION

Human Albumin Grifols® 25% is contraindicated in patients with severe anemia or cardiac failure in the presence of normal or increased intravascular volume.

The use of Human Albumin Grifols® 25% is contraindicated in patients with a history of allergic reactions to albumin.

WARNINGS

Solutions of Albumin (Human), Human Albumin Grifols® 25% should not be used if they appear turbid or if there is sediment in the bottle. Do not begin administration more than 4 hours after the container has been entered. Discard unused portion.

Human Albumin Grifols® 25% is made from human plasma. Products made from human plasma may contain infectious agents, such as viruses, that can cause disease. The risk that such products will transmit an infectious agent has been reduced by screening plasma donors for prior exposure to certain viruses, by testing for the presence of certain current virus infections, and by inactivating certain viruses by pasteurization. Despite these measures, such products can still potentially transmit disease. A theoretical risk for transmission of Creutzfeldt-Jakob disease (CJD) also is considered extremely remote. No cases of transmission of viral diseases or CJD have ever been identified for albumin. There is also the possibility that unknown infectious agents may be present in such products. ALL infections thought by a physician possibly to have been transmitted by this product should be reported by the physician or other healthcare provider to Grifols Biologicals, at 888-GRIFOLS (888-474-3657). The physician should discuss the risks and benefits of this product with the patient.
There exists a risk of potentially fatal hemolysis and acute renal failure from the inappropriate use of Sterile Water for Injection as a diluent for Albumin (Human) 25%. Acceptable diluents include 0.9% Sodium Chloride or 5% Dextrose in Water.

PRECAUTIONS

Human Albumin Grifols® 25% should be administered with caution to patients with low cardiac reserve.
Rapid infusion may cause vascular overload with resultant pulmonary edema. Patients should be closely monitored for signs of increased venous pressure.
A rapid rise in blood pressure following infusion necessitates careful observation of injured or postoperative patients to detect and treat severed blood vessels that may have bled at a lower pressure.

Patients with marked dehydration require administration of additional fluids. Human Albumin Grifols® 25% may be administered with the usual dextrose and saline intravenous solutions. However, certain solutions containing protein hydrolysates or alcohol must not be infused through the same administration set in conjunction with Human Albumin Grifols® 25% since these combinations may cause the proteins to precipitate.
Pregnancy category C. Animal reproduction studies have not been conducted with Albumin (Human). It is also not known whether Albumin (Human) can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Albumin (Human) should be given to a pregnant woman only if clearly needed.

ADVERSE REACTIONS

Allergic or pyrogenic reactions are characterized primarily by fever and chills; urticaria, rash, nausea, vomiting, tachycardia, headache and hypotension have also been reported. Should an adverse reaction occur, slow or stop the infusion for a short period of time which may result in the disappearance of the symptoms. If administration has been stopped and the patient requires additional Human Albumin Grifols® 25%, material from a different lot should be used.

Human Albumin Grifols® 25% particularly if administered rapidly, may result in vascular overload with resultant pulmonary edema.

DOSAGE AND ADMINISTRATION

Albumin (Human), Human Albumin Grifols® 25% is administered intravenously. The total dosage will vary with the individual

In adults, an initial infusion of 100 mL is suggested. Additional amounts may be administered as clinically indicated.

The initial dosage in children will vary with the clinical state and body weight. A dose one-quarter to one-half the adult dose may be administered, or dosage may be calculated on the basis of 1-3 mL per kg of body weight.

For infants suffering from hemolytic disease of the newborn the appropriate dose for binding of free serum bilirubin is 1 gram per kilogram of body weight. This may be administered before or during the exchange procedure[6].

In the treatment of the patient in shock with greatly reduced blood volume, Human Albumin Grifols® 25% may be administered as rapidly as necessary in order to improve the clinical condition and restore normal blood volume. This may be repeated in 15-30 minutes if the initial dose fails to prove adequate. In the patient with a slightly low or normal blood volume, the rate of administration should be 1 mL per minute. The usual rate of administration in children should be one-quarter the adult rate.
Parenteral drug products should be inspected visually for particulate matter and discoloration prior to administration, whenever solution container permit.

Directions for Use (When Administration Set is Used)
Flip off plastic cap on top of the vial and expose rubber stopper. Cleanse exposed rubber stopper with a suitable germicidal solution, being sure to remove any excess. Observe aseptic technique and prepare sterile intravenous equipment as follows:

1. Close clamp on administration set (delivers approximately 19 drops/mL).
2. With bottle upright, thrust piercing pin straight through stopper center. Do not twist or angle.
3. Immediately invert bottle to automatically establish proper fluid level in drip chamber (half full).
4. Attach infusion set to administration set, open clamp and allow solution to expel air from tubing and needle, then close clamp.
5. Make venipuncture and adjust flow.
6. Discard all administration equipment after use. Discard any unused contents.

Directions for Use (When Administration Set is Not Used)
Flip off plastic cap on top of the vial and expose rubber stopper. Cleanse exposed rubber stopper with a suitable germicidal solution, being sure to remove any excess. Observe aseptic technique and prepare sterile intravenous equipment as follows:

1. Using aseptic technique, attach filter needle to a sterile disposable plastic syringe.
2. Insert filter needle into Albumin (Human), Human Albumin Grifols® 25% vial.
3. Aspirate Human Albumin Grifols® 25% from the vial into the syringe.
4. Remove and discard the filter needle from the syringe.
5. Attach desired size needle to syringe.
6. Discard all administration equipment after use. Discard any unused contents.

HOW SUPPLIED

- 50 mL vial Human Albumin Grifols® 25%
- 100 mL vial Human Albumin Grifols® 25%

STORAGE

Human Albumin Grifols® 25% is stable for three years providing storage temperature does not exceed 30 °C. Protect from freezing.
Caution
Federal (USA) law prohibits dispensing without a prescription.

REFERENCES

1. Tullis, J.L., "Albumin: 1. Background and Use, 2. Guidelines for Clinical Use". JAMA 237; 355-360, 460-463, 1977.
2. Finlayson, J.S., "Albumin Products" Seminars in Thrombosis and Hemostasis, Vol 6, pp. 85-120, 1980.
3. Janeway, C.A., "Human Serum Albumin: Historical Review" in: Proceedings of the Workshop on Albumin. Sgouris, JT and René A (eds). DHEW Publication No. (NIH) 76-925, Washington, D.C., U.S. Government Printing Office, 1976, pp. 3-21.
4. Houser, C.J., et al., "Oxygen Transport Responses to Colloids and Crystalloids in Critically III Surgical Patients". Surgery, Gynecology and Obstetrics, Vol. 150, pp. 811-816, June 1980.
5. Peters, T., J.R., "Serum Albumin" in: The Plasma Proteins, 2nd Ed., Putnam F.W. (ed), New York Academic Press, Vol 1, 133-181, 1975.

6. Tsao, Y.C., Yu V.Y.H., "Albumin in the Management of Neonatal Hyperbilirubinemia". Arch Dis Childhood, Vol. 47, pp. 250-256, 1972.

Manufactured by **Instituto Grifols, S.A.**
Barcelona – SPAIN
U.S. Licence No. 1181
Distributed by **Grifols Biologicals, Inc.**
Los Angeles - CA 90032
Revised: January 2007
3025176

PACKAGE LABEL – PRINCIPAL DISPLAY PANEL – 50 ML VIAL

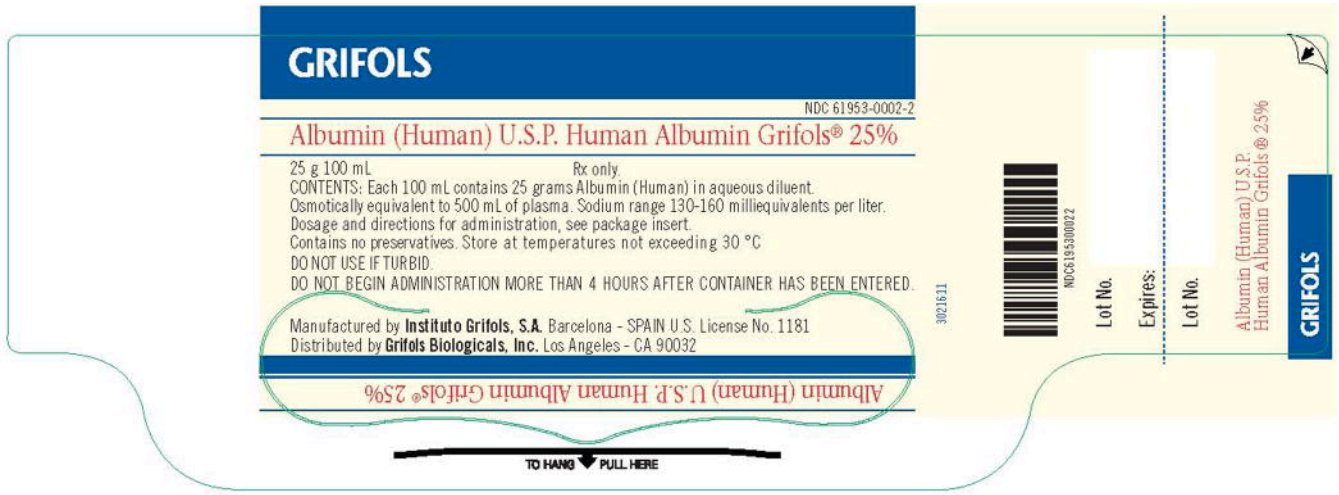
NDC 61953-0002-1

Albumin (Human) U.S.P. Human Albumin Grifols® 25%
12.5 g 50 mL Rx only.
Dosage and directions for administration, see package insert.
Store at temperatures not exceeding 30 °C
DO NOT USE IF TURBID. DO NOT BEGIN ADMINISTRATION MORE THAN 4 HOURS AFTER THE CONTAINER HAS BEEN ENTERED.
Manufactured by **Instituto Grifols, S.A.** Barcelona – SPAIN U.S. License No. 1181
Distributed by **Grifols Biologicals, Inc.** Los Angeles – CA 90032

PACKAGE LABEL – PRINCIPAL DISPLAY PANEL – 100 ML VIAL

NDC 61953-0002-2

Albumin (Human) U.S.P. Human Albumin Grifols® 25%
25 g 100 mL Rx only.
CONTENTS: Each 100 mL contains 25 grams Albumin (Human) in aqueous diluent.
Osmotically equivalent to 500 mL of plasma. Sodium range 130-160 milliequivalents per liter.
Dosage and directions for administration, see package insert.
Contains no preservatives. Store at temperatures not exceeding 30 °C
DO NOT USE IF TURBID.
DO NOT BEGIN ADMINISTRATION MORE THAN 4 HOURS AFTER THE CONTAINER HAS BEEN ENTERED.
Manufactured by **Instituto Grifols, S.A.** Barcelona – SPAIN U.S. License No. 1181
Distributed by **Grifols Biologicals, Inc.** Los Angeles – CA 90032



PACKAGE LABEL – PRINCIPAL DISPLAY PANEL – 50 ML CARTON

GRIFOLS
NDC 61953-0002-1
Albumin (Human) U.S.P.
Human Albumin Grifols®
25% Solution
12.5 g 50 mL
DO NOT USE IF TURBID.
DO NOT BEGIN ADMINISTRATION MORE THAN 4 HOURS AFTER THE CONTAINER HAS BEEN ENTERED.

PACKAGE LABEL – PRINCIPAL DISPLAY PANEL – 100 ML CARTON
GRIFOLS
NDC 61953-0002-2
Albumin (Human) U.S.P.
Human Albumin Grifols®
25% Solution
25 g 100 mL
DO NOT USE IF TURBID.

DO NOT BEGIN ADMINISTRATION MORE THAN 4 HOURS AFTER THE CONTAINER HAS BEEN ENTERED.